

A Look at the Effect of Manholes on Street Condition

A Student Intern Project

By

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A sunken
manhole is a
pothole with a
steel bottom



Why look at manholes?

Residents rated
streets low

(Source: 2003 City
Services Performance
Report)



Why look at manholes?

Manholes contribute
to street roughness

(Source: Street
Maintenance
Performance Audit)



There are tens
of thousands of
manholes in
city streets in
Kansas City



How many?

- Mostly city owned
- 48,000 sewer manholes
- 31,000 water valves
- Many private utilities



Over 20 utilities with manholes



30% of 408
manholes
sampled were
uneven



Some above pavement



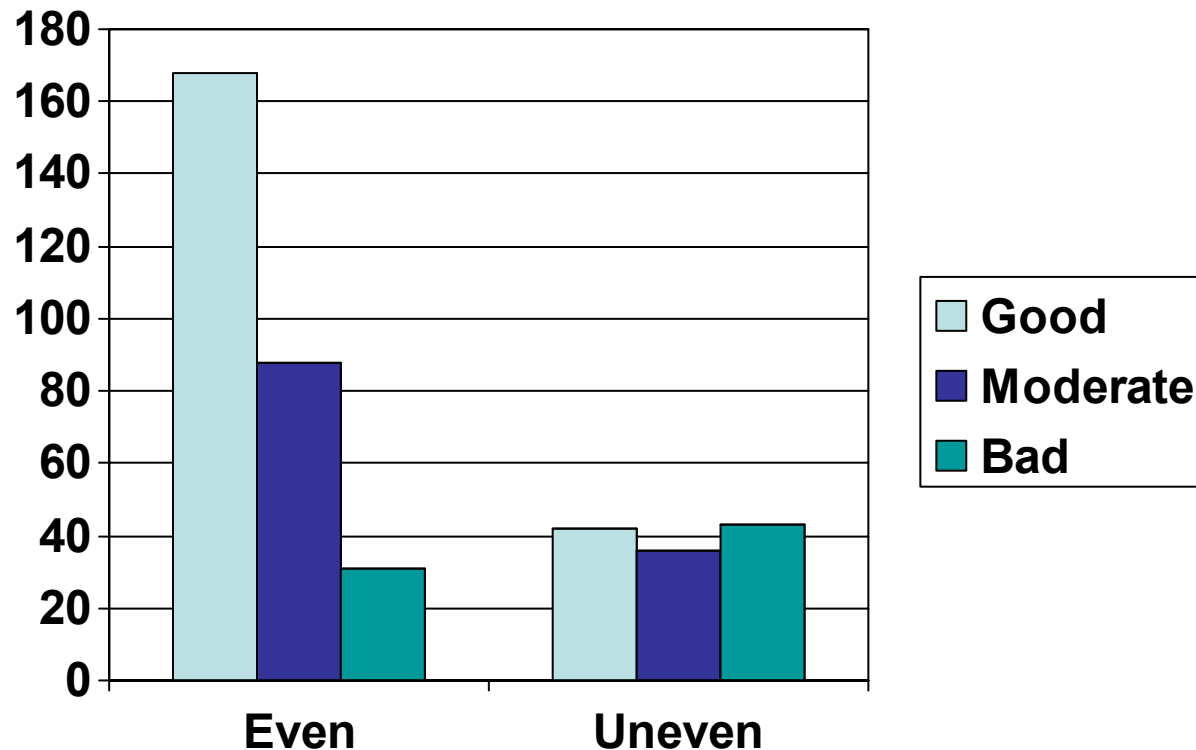
Some below pavement



Uneven manholes more likely to have pavement damage



What is the condition of pavement around manholes?



Results

| | <u>Even</u> | <u>Uneven</u> |
|-----------------|-------------|---------------|
| <u>Pavement</u> | | |
| Good | 59% | 35% |
| Moderate | 31% | 30% |
| Bad | <u>11%</u> | <u>35%</u> |
| Total Manholes | 287 | 121 |



Streets with more traffic are more likely to have uneven manholes & more pavement damage



Closing the loop

- Drivers don't like bumpy streets
- Uneven manholes add bumps to the streets
- Bumps caused by manholes may explain some citizen dissatisfaction



What next?

- The city could find out more about the effect of uneven manholes on city streets
- Take steps to reduce that effect

